CA-6050
Solar Power Unit

User Guide

Designed to work with the Norsonic range of
sound level meters to provide a DC supply in remote locations
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Introduction

The **CA-6050 Solar Power Unit** is designed to work with the Norsonic range of sound level meters to provide a DC supply in remote locations for medium term unattended noise monitoring applications.

The unit is supplied with a re-chargeable battery system that is used to power the measuring equipment during the night and periods of low sunlight.

The central control unit monitors the power output from the solar panel array and ensures that the measuring equipment is always powered. When the solar panel output level is high, the extra power is used to charge the back-up battery system. The battery is automatically switched to the supply mode when the output from the solar panels falls below a usable level.

The capacity of the standard battery system (2 x batteries supplied) is design to provide 6 days power in the event of a complete failure of the solar panel array when used with the Norsonic 140 sound level meters when the batteries are fully charged.

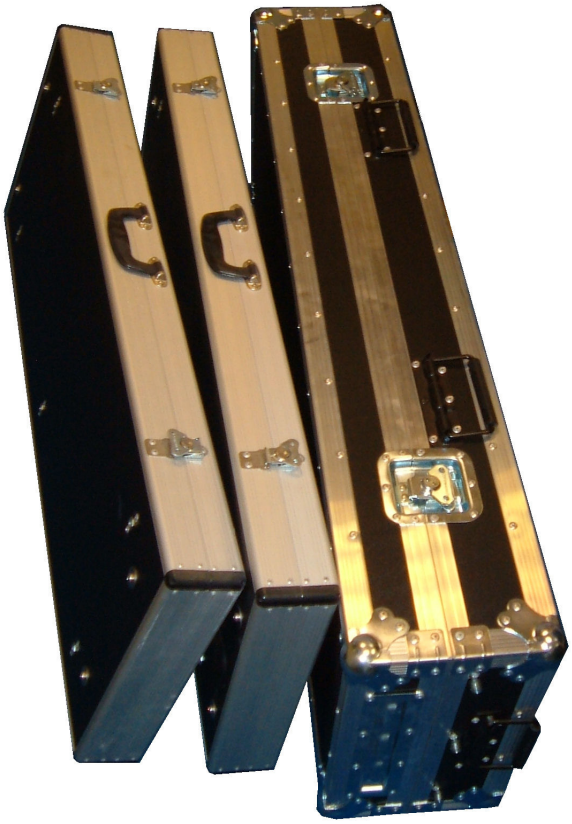
Note: the unit can charge up to a maximum of 6 batteries, please contact us if you plan to power additional equipment from the unit.

The system is supplied in three cases with all the components required to install the unit at the optimum angle for maximum power generation.

Important Note
Assembly of the system is a **two man** job and care must be taken as the unit is heavy once assembled.

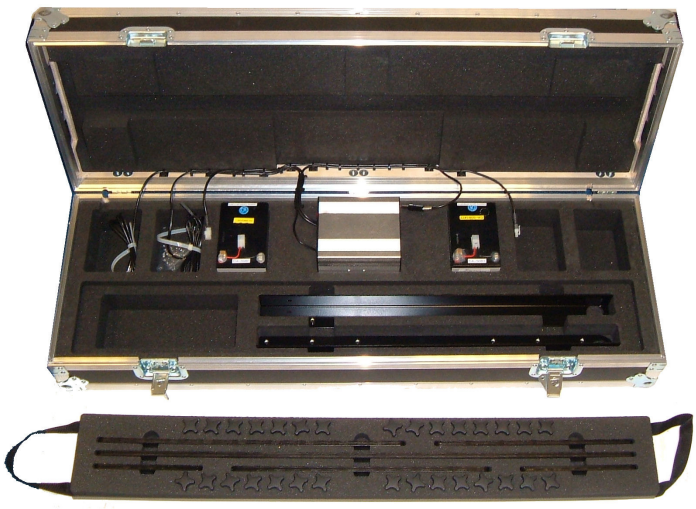
Components

The system is supplied in three cases.



Two solar panel array cases and the central support / control case.

Solar Array Case



Central Support Case

Solar Array Case

Each solar array case contains two solar panels, one per section. The case is designed as a support frame for the solar panels.

Control Case

The control case contains the pre-wired controller, batteries, connection cables and assembly components.

Assembly Component List

The following system components required to assembly the solar panel array system are stored in the control case, Please ensure all the components are available before starting the assembly.

Item	Quantity
A - Array locking bar	2
B - Array linking bar	2
C - Array support bar	2
D - Array base support bar	2
E - Array angle bar – short	2
F - Array angle bar – medium	2
G - Array angle bar – long	2
H - Fixing bolts	30
I - Guy rope and pegs	1

A

B

C

D

E

F

G

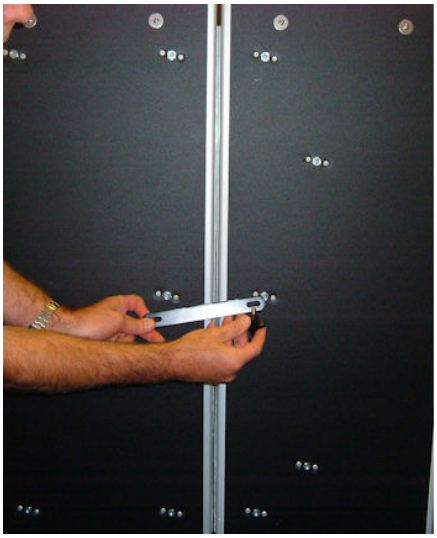
H

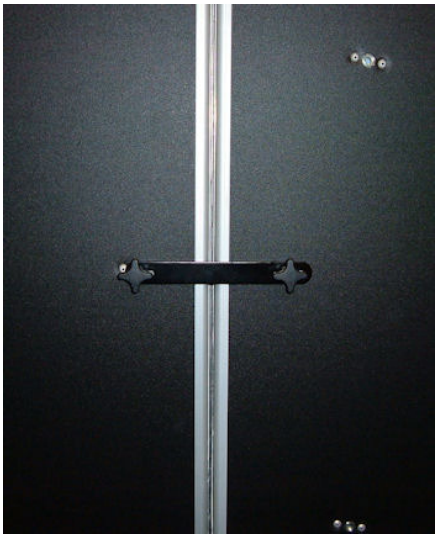
I

Assembly

Important
This equipment requires two people to assemble and position correctly.
Please ensure the assembly area is clear and level before starting to assemble the system.

Solar Array – Sub Panel
Open one of the solar array cases fully and fix the "**Array locking bar (A)**" to the centre of the back panel using "**Fixing bolts (H)**" to lock the panel open. The cables on the solar panels must be at the top.





Locate the "**Array support bars (C)**" under the component tray.

Select the correct unit for the array panel you are assembling. The bar should be mounted on the handle side of the array with the large hole situated at the top of the plate facing towards the handle edge.

Fix the "**Array support bars (C)**" to the back plate using "**Fixing bolts (H)**"

Assemble the second solar array panel in the same manner.

Solar Array – Complete Panel

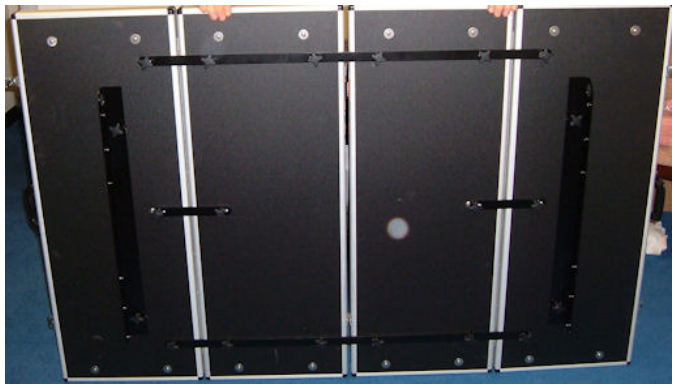
Place the two assembled array panels side by side with the handles to the outside and solar panel cables at the top of the unit.

Locate the "**Array linking bars (B)**" in the component tray.

The bars are used to fix the two sub array panels together to form a solid structure. Each bar is held in place with 6 "**Fixing bolts (H)**". Insert the bolts loosely so that all bolts can be installed first.

Fix the top "**Array linking bar (B)**" loosely fixing the outer "**Fixing bolts (H)**" first.

Then fix the bottom "**Array linking bar (B)**" and tighten all (12) "**Fixing bolts (H)**".



Finished assembly

Solar Array – Control Unit

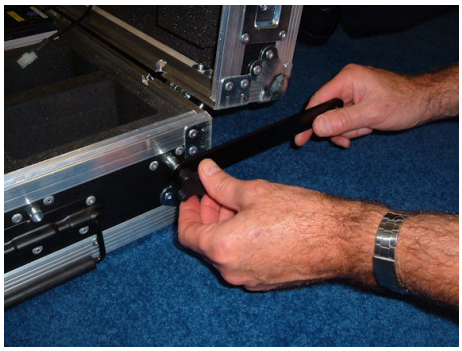
Set the solar array unit to one side and position the control box in the installation position with the front facing away from the sun.

Locate the "**Array base support bars (D)**" in the component tray.

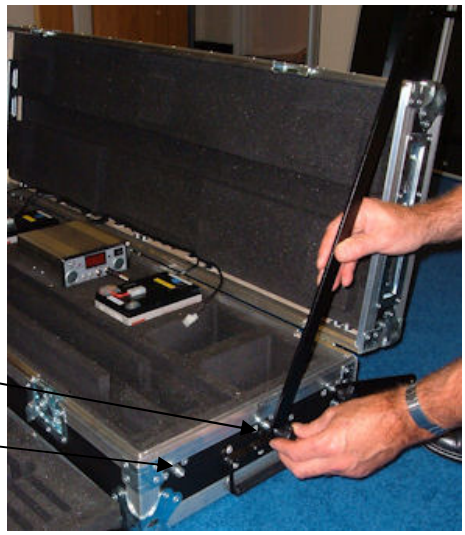
Locate the "**Array angle bars (E F & G)**" in the component tray.

These are supplied in three lengths: short, medium and long. Each bar has fixing holes at the base. The combination of bar length, fixing hole and fixing stud allow you to set the angle of the panel to maximise the sun exposure surface.

Fix the 2 "**Array base support bars (D)**" to rear fixing studs on either side of the control box using the "**Fixing bolts (H)**".



Select the 2 "**Array angle bars (E F & G)**" of the required length and fix them to the middle or front fixing studs using the "**Fixing bolts (H)**" to give the required installation angle of the solar array panels.



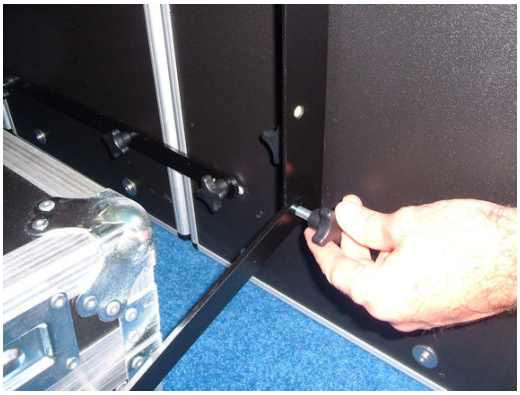
The base is now ready to receive the solar array.

Solar Array – Final Assembly

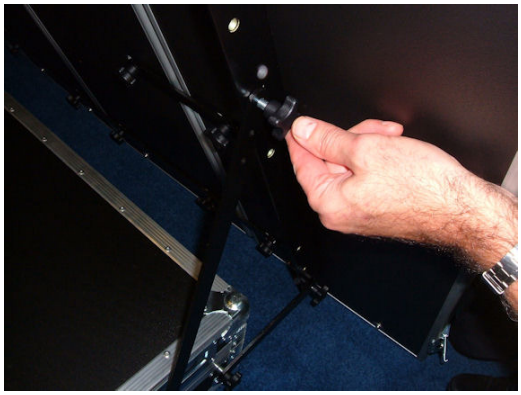
Holding the array unit against the control box, fix the "**Array locking bars (A)**" to the bottom of the "**Array support bars (C)**" using the "**Fixing bolts (H)**" on either side of the array.

Tilt the array backward and fix the "**Array angle bars (E F or G)**" to the top of the "**Array support bars (C)**" using the "**Fixing bolts (H)**" on either side of the array.

Bottom fixing point



Top fixing point



The unit is now fully assembled.

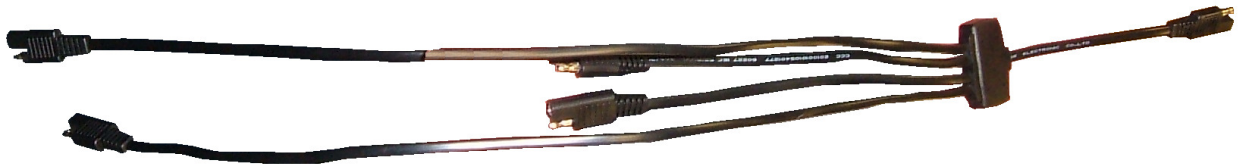
Check all "**Fixing bolts (H)**" to ensure they are all tighten fully.

Connection

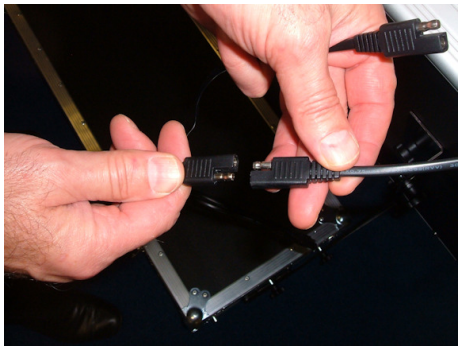
Solar Array Unit

The control unit and battery cables are pre-wired. Equipment interconnection cables are located in the storage compartment.

Locate the four-way array interconnection lead.



The lead is supplied with five specially moulded weatherproof connectors.

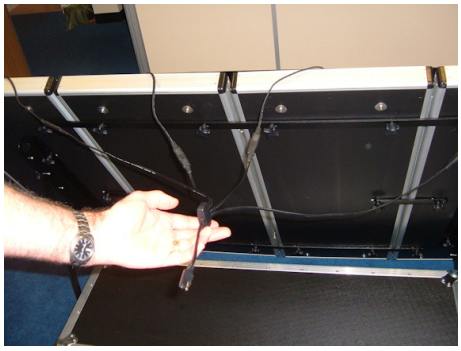


Connect the four solar array panel fly leads to the four-way interconnection cable.

Short leads to the inner panels.

Long leads to the outer panels.

Lay the panel lead in the frame cut-out provided.



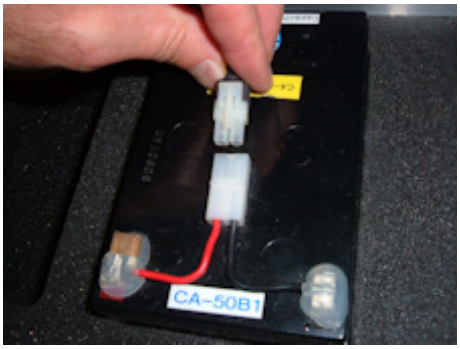
Locate the array connection lead in the compartment box.

Feed this between the lid and the base unit until you reach the cable notch. Place the cable in the notch and ensure it is not trapped when the lid is closed.

Feed the cable between the base unit and the solar array and connect it the 4 way connection lead.

Feed the equipment DC power supply cable between the lid and base to join the array lead. Place the cable in the notch with the array lead and ensure neither cable is trapped when the lid is closed.

Connect the battery fly leads to the batteries.



The solar array unit is now assembled.
Return all unused components to the case, close and secure the lid.

Monitoring Equipment

The system is designed to locate the monitoring equipment on top of the case lid behind the array panels.

Place the monitoring unit environmental case on the lid and feed the DC supply lead through the cable inlet.

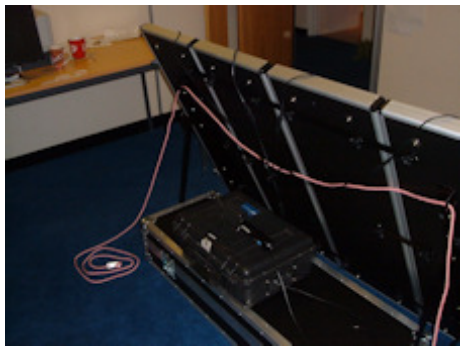
Install the microphone cable.
Turn on the monitor and set the required monitoring functions.
Shut and secure the monitoring case lid.

Security

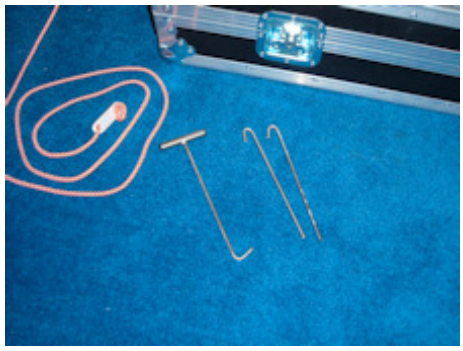
A **guy rope and pegs (I)** are provided in the kit to secure the unit in windy locations.

Feed the rope through the large hole in the top of the right "**Array support bars (C)"**

Feed the rope across the back of the solar array and through the large hole in the top of the left "**Array support bars (C)"**



Use the two pegs provided to secure the array.



Dismantle

Disconnect the monitoring equipment.
Open the lid and ensure the batteries are disconnected first.
Dismantle the unit in the reverse order.
Wipe clean and store all components in the relevant storage compartment.

Specification

Power	60w
Peak Output	3.24 @ 17.5v
Dimensions	Array Case (x 2) 410mm(W) 1060mm(L) 85mm(D)
	Controls Case 400mm(W) 1190mm(L) 230mm(D)
Weight	Array Case (x2) 13.5Kg
	Control Case 22.8Kg
Batteries	2 x 12volt/12AH batteries supplied
	Capacity – maximum 6 x 12volt / 12AH batteries
Battery Charge Time 2 x 12AH batteries	2.5 days